

REMARKS

File History

In the Office action of 6/27/2005, the following allowances, rejections, objections and other actions appear to have been made:

- > Claims 1-2, 4, 8, 13-14 were rejected under 35 USC §102(e) as being fully anticipated by Fujimoto et al (US 6,830,973 filed 9/11/2002).
- > Claims 1-12, 15 were rejected under 35 USC §103(a) as being obvious over Kim (US 6,806,517) in combination with Gluschenkov (US 6,667,197).
- > Claims 16-20 were finally restricted from examination.
- > The PTO indicated it was giving no patentable weight to at least one preamble recitation.

Summary of Current Response

No Claims are substantively amended. (The square bracketed cross references are removed.)

Arguments are presented concerning the applied art and other bases of rejection.

Applicants' Overview of Outstanding Office Action

Applicant sees the outstanding Office action of 6/27/2005 as having the following major features:

- (1) The PTO admits that it has given no patentable weight to the preamble limitation:

"... an ONO-type memory cell stack where at least one sidewall of the ONO-type memory cell stack includes a plurality of exposed material layers respectively composed of different materials ..."

(OA page 3, paragraph 3, line 1).

{The unweighted language appears not only in rejected Claim 1 but also in the preamble of restricted out Claim 16.}

(2) The PTO does not address specifics of the rejected claims and instead reaches a sweeping conclusion that all these claims are either fully anticipated by Fujimoto or obvious in view of Kim combined with Gluschenkov..

(3) The PTO admits that neither of Kim and Gluschenkov discloses the recited volumetric flow ratio. Nonetheless, the PTO asserts that it would have been obvious to select "suitable time, flow rate and thickness" because "discovering" an optimum involves only routine skill (OA page 5, last few lines).

Applicants' Objection to Treatment of Preamble Language and other parts of the claims

Proper construction of claim language is a prerequisite to essentially all rejections or restrictions against claims.

MPEP §2111.01 part II explains that "Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art." (emphasis added). The broadest reasonable interpretation of the claims must ... be consistent with the interpretation that those skilled in the art would reach. (citing *In re Cortright* in the introduction to §2111). The MPEP goes on to explain by also relying on *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) that "Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation'." 710 F.2d at 802, 218 USPQ at 292 (emphasis added).

If the claims are not given a proper interpretation, then the whole examination process is for naught because **the claim is the name of the game** (Paraphrasing *In re Hiniker Co.*, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998)).

In ruling on weight to be given to the preamble, the PTO relies on Bell Communications Research, Inc. v. Vitalink Communications Corp.

It is respectfully submitted that *Bell Communications*, holds exactly **opposite to the way the PTO reads it**.

As explained by the court later in Eaton Corp. v. Rockwell Int'l Corp., 323 F.3d 1332; 66 U.S.P.Q.2d 1271, (Fed. Cir. 2003), rehearing denied 2003 U.S. App. LEXIS 10936 (Fed. Cir. 2003):

"[A] claim preamble has the import that the claim **as a whole** suggests for it. In other words, when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). When limitations in the body of the claim rely upon **and derive antecedent basis from the preamble**, then the preamble may act as a necessary component of the claimed invention. See, e.g., *Electro Sci. Indus. v. Dynamic Details, Inc.*, 307 F.3d 1343, 1348, 64 USPQ2d 1781, 1783 (Fed. Cir. 2002); *Rapoport v. Dement*, 254 F.3d 1053, 1059, 59 USPQ2d 1215, 1219 (Fed. Cir. 2001); *Pitney Bowes*, 182 F.3d at 1306, 51 USPQ2d at 1166. On the other hand, "if the body of the claim sets out the complete invention," then the language of the preamble may be superfluous. *Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1310, 64 USPQ2d 1832, 1837 (Fed. Cir. 2002); *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1373-74, 58 USPQ2d 1508, 1512 (Fed. Cir. 2001).

... Instead, as in Bell Communications and *Griffin*, we conclude that the inventor [of Eaton] chose to use both the preamble and the body of the claim to define his invention. **The preamble therefore limits the claimed invention**. As such, claim 14 as properly construed requires an "automatic mechanical vehicle driveline system" that includes, among other things, "an information processing unit" for processing signals in accordance with a program for causing the engagement of gear ratio combinations. [text copied from Eaton Corp., emphasis and square brackets added].

The present situation is on point with *Bell Communications* and *Eaton Corp.* The body of Claim 1 makes antecedent reference to an element recited in the preamble, namely, "(a) subjecting **the** at least one sidewall to ..." The body of Claim 16 makes antecedent reference to an element recited in the preamble, namely, "(a) a sidewall-coating dielectric whose fabrication **was** at least initially started by subjecting at least one otherwise exposed

and multi-layered sidewall of the ONO-type memory cell stack to a dry ISSG process (In-Situ Steam Generation)." [emphasis added in both instances].

Because the PTO chose to ignore essential parts of the claims in reaching its decisions both as to restriction and as to patentability, it is respectfully submitted that the entirety of the Office action is defective. The rejections and restrictions should be rescinded. Reexamination of all issues is respectfully requested.

Despite the above and in order to expedite matters, Applicant proceeds by reviewing the applied art and applied rational.

Applicants' reading of the cited Fujimoto reference

No specific passages of Fujimoto were pointed to in the Office action. Applicant suggests that Figs. 6C and 6D are probably the most relevant because at least there, in Fig. 6C, a sidewall is seen having insulative material 13B and doped polysilicon 14B exposed along the sidewall. The person skilled in the art would view only the vertical edges of 13B and 14B as forming the "sidewall", particularly in light of usage of that term within the present application. To rule otherwise would be wholly unreasonable because then the term "sidewall" would mean every surface. It would have no meaning or end to it. One could arbitrarily continue around to the bottom surface of the substrate. A person skilled in the art would find such an interpretation to be unreasonable.

With regard to the term "an ONO-type memory cell stack", the following observations are made. First, Claims 9-11 recite elements included in the stack for respective embodiments of claims 9-11. It is well established that the claims themselves are the best place to start when seeking to interpret claim language.

Second, at paragraph [0009] of the present application, it is stated that the "inter-gates insulator (IGI) layer typically contains a series of different dielectric materials. The classical combination is that of silicon oxide, silicon nitride and again silicon oxide, hence the name, ONO." The specification goes on to state that "Such sandwiching of different kinds of material layers between the memory cell gates as well as the materials of the memory cell gates can create problems as will be further explained" (emphasis added). At paragraph [0015] the present application states "However, the very fact that the ONO stack contains different materials, most notably: a silicon nitride layer or the like, makes it difficult to consistently form sidewall insulation of both good quality and consistent dimensions. Silicon nitride resists conventional oxidation. As a result, ... leaving the side of the silicon nitride layer relatively un-oxidized. This differential behavior often results in the formation of a Bird's Beak geometry." (emphasis added).

At paragraph [0034] the present application states "(Although a conventional, oxide-nitride-oxide combination is described for purpose of example, it is within the contemplation of the disclosure that other stacks of different dielectric materials may be used in place of the fundamental ONO stack 117, for example, a NONO stack which may include oxynitride layers within it. The gate electrodes may additionally, be made of materials other than polysilicon.)" (emphasis added).

In view of the above intrinsic evidence, it is seen that there is much discussion in the specification about the nature of an "ONO-type memory cell stack". The specification makes it clear that the ONO-type memory cell stack will have dielectric layers that oxidize differentially when exposed to conventional oxidation methods.

The structure shown in Fig. 6C of Fujimoto cannot qualify as an ONO-type memory cell stack because it has only one insulating layer, 13B. It cannot suffer from differential oxidation of plural dielectric layers. Thus Fujimoto cannot logically anticipate the subject matter of Claim 1. The rejection should be rescinded.

Applicants' reading of the cited Kim reference

Kim '517 clearly does have an ONO wedge structure. In Fig. 7B items 722 (O), 724 (N), 722 (O --a continuation of the other side of the wedge) define such a wedge.

Kim fails to appreciate the problem of differential sidewall oxidation and fails to solve the unrecognized problem. In Kim Fig. 7B, layer 732 defines the sidewall oxide. This layer 732 of Fig. 7B is formed by CVD deposition just as layer 632 is formed in the case of corresponding Fig. 6F. See col. 7, lines 26-27. See also col. 6, lines 65-66.

The Office action confirms this reading of Kim at OA page 4, last two lines and page 5, line 1.

Applicants' reading of the cited Gluschenkov reference

The Office action does not explain how an ordinary artisan would come to see a connection between Gluschenkov and Kim.

Gluschenkov is directed to thermally growing oxide on a semiconductor (col. 3, line 29) having adjacent semiconductive regions with different doping concentrations (col. 3, line 30). Gluschenkov does not anywhere teach or suggest that thermal growth of oxide is a

substitute for CVD deposition of oxide. Kim does not anywhere teach or suggest that thermal growth of oxide is a substitute for CVD deposition of oxide.

It is well understood by skilled artisans that thermal growth and CVD deposition are uniquely different methods for defining of oxide. For one thing, thermal growth consumes silicon by converting it into oxidized silicon. Kim is very concerned with maintaining accurate dimensions for his LDD structures (Kim col. 3, lines 35-41 --just above Summary of the Invention). Thermal sidewall oxidation would alter the LDD dimensions that Kim creates in Fig. 6E via etch back prior to LDD implant step 635 in Fig. 6F. This is how an ordinary artisan would read Kim.

The ordinary artisan would therefore be motivated away from considering thermal sidewall oxidation. Moreover thermal growth affects the thermal budget whereas CVD does not to the same extent. This would be another reason the ordinary artisan would be motivated away from considering thermal sidewall oxidation in Kim in place of the CVD process actually taught by Kim.

In one embodiment, Gluschenkov's "stacks" consist of silicon (col. 4, line 66). Metal may be provided on the upper portion of the "stack" (col. 5, lines 1-2).

Gluschenkov presents his hydrogen content for the ISSG process in terms of partial pressure (col. 6, lines 5-10). It is not inherent that volumetric flow ratio would comport with partial pressure ratios.

Traverse of the §103 rejections

The only justification that the Office action feigns at providing for the proposed combination of the unrelated disclosures of Kim and Gluschenkov is found at OA page 5, last 3 lines of top paragraph. It is no justification at all but simply a raw conclusion followed by a disconnected statement that one skilled in the art would view ISSG as providing excellent thickness control.

It is well established that a prima facie case of obviousness requires motivation to combine and an articulated basis for modifying one reference in view of the other. Both of these are lacking in the present situation. One skilled in the art would not have seen any logical connection between Kim and Gluschenkov and thus there is no motivation to combine. Applicant provides arguments above about why there is motivation to *not* substitute high temperature and material consuming oxide growth in place of low temperature CVD as taught by Kim. Thus the balance of evidence on record points away from combining Kim with Gluschenkov and away from substituting a thermal growth process for a CVD sidewall process.

With regard to the PTO's reliance on *In re Woodruff*, this is misplaced. The burden is initially on the PTO to present a prima facie case of obviousness, including a showing of an overlap of ranges for each of the rejected claims. Only then does the burden shift to Applicant to show criticality.

With regard to some of the rejected claims, the Office action does not even try to present a pretense of rational for making the obviousness rejection. Take for example, Claim 10 which calls for: "(b.4) a second silicon layer; (b.5) a second silicon oxide layer". In Kim's

wedge structure it is the same "second oxide" 618 of Fig. 6D that becomes 622 of the etched back wedge in Fig. 6E.

CONCLUSION

In light of the foregoing, Applicant respectfully requests that the rejections and restrictions be withdrawn and reconsidered. Should any other action be contemplated by the Examiner, it is respectfully requested that he contacts the undersigned at (408) 392-9250 to discuss the application.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 50-2257 for any matter in connection with this response, including any fee for extension of time and/or fee for additional claims, which may be required.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 3, 2005.



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Date of Signature

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